

## SUBSPECIES OF THE GLAUCOUS GULL, *LARUS* *HYPERBOREUS* (AVES: CHARADRIIFORMES)

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*Abstract.*—Current writings treat the Holarctic Glaucous Gull, *Larus hyperboreus*, either as a monotypic species or as having two or three subspecies; if divided, birds of Canada, Greenland, and Europe are considered to be of the nominate subspecies. This study shows that there are four subspecies, the birds of Canada and Greenland being separable from those of Europe; the name *L. h. leuceteres* Schleep, 1819, based on a Greenland bird, is available for the former. Alaskan birds (*L. h. barrovianus*) are relatively dark on the mantle, those of Canada and Greenland are pale, those of Europe and western Asia are dark, and those of Siberia (*pallidissimus*) are very pale. From the small Alaskan birds there is an increase in size to the east around the Holarctic to very large birds in Siberia. The Alaskan and Canadian populations intergrade in extreme northwestern Canada. Nonbreeding Glaucous Gulls along the Pacific coast of North America are of the Alaskan form, *barrovianus*; those east of the Rockies, previously referred to as *barrovianus* or *hyperboreus*, are all *leuceteres* or, in the western plains states, from the intergrade area.

The nature and extent of geographic variation in the Holarctic Glaucous Gull, *Larus hyperboreus*, and the nomenclatural recognition of this variation have been a matter of dissent since the species was first divided in the late 19th century. Authorities writing in the last two decades have considered the species to be either monotypic or composed of two or three subspecifically distinct populations. Authors who recognize subspecies have not agreed on the application of names or on the boundaries of the named populations.

A request for subspecific identification of a wintering specimen prompted a reexamination of the series of this species in the National Museum of Natural History (USNM), the American Museum of Natural History (AMNH), and the Academy of Natural Sciences of Philadelphia (ANSP), and some individual specimens borrowed from other institutions (see Acknowledgments), as well as the taxonomic literature of the species. This has allowed the identification

of some of the sources of earlier disagreement, and revealed that geographic variation is more complex than has been recognized. I believe that four populations are recognizable at the subspecific level.

### Taxonomic History

The name *Larus glaucus* Brünnich, 1764, was used for the Glaucous Gull until the early part of the 20th century. The American Ornithologists' Union (A.O.U. 1908), citing a manuscript by C. W. Richmond (apparently never published), noted that *Larus glaucus* of Brünnich is preoccupied by *Larus glaucus* Pontippidan, 1763, a synonym of *Larus canus* Linnaeus, 1758, and that the next available name is *Larus hyperboreus* Gunnerus, 1767. The latter has been the accepted specific name ever since.

Ridgway (1886) described *Larus barrovianus* as an Alaskan species of gull that was smaller and darker than the related North Atlantic *L. glaucus*. The name *barrovianus* was applied to Bering Sea birds by Tacz-

nowski (1893), but was synonymized with *glaucus* by Saunders (1896). Dwight (1906) thought that the size difference between *barrovianus* and *glaucus* was insufficient for the recognition of the former, and although he did not comment on the color difference he also placed *barrovianus* in the synonymy of *glaucus*. After 1908, *barrovianus* was carried in the synonymy of *hyperboreus*, even by Ridgway (1919). Oberholser (1918), however, proposed recognition of *barrovianus* as a subspecies of *hyperboreus*, emphasizing the color difference, and attributed to it a breeding range in "Alaska and the territories of Yukon and western Mackenzie." In a stinging rebuff, Dwight (1919) reemphasized the weakness of the characters used by Ridgway and Oberholser; the latter repeated his argument (Oberholser 1919) only to have it rebutted again (Dwight 1925). Despite support for the recognition of *barrovianus* by Bishop (1927), that form was not recognized in compendia by the A.O.U. (1931) or Peters (1934).

Portenko (1939), on the basis of a statement in a letter from Herbert Friedmann that "the characters given concerning the colouring of the mantle [of the type of *barrovianus*] . . . do not hold for other specimens from the same region," believed that the type of "*barrovianus*" was a hybrid between *L. hyperboreus* and *L. glaucescens* and not "identical with the pale coloured Glaucous Gulls from the Arctic shores of N.E. Asia and N.W. America." Portenko (1939) proposed the name *L. h. pallidissimus* for the birds of eastern Asia, primarily on the basis of their paler mantle color relative to birds of Europe and western Asia but noting also their larger size. Portenko had a similarly pale bird from Ellesmere Island, and presumed that the range of *pallidissimus* extended from Siberia eastward across arctic America at least to that island. Thus the Alaskan birds, first described as smaller and darker, were incorporated into a subspecies based on pallor and large size.

Witherby (in Witherby et al. 1941:112) noted that *pallidissimus* had been described, but stated that "specimens from Amur and Alaska do not appear to me to differ from European examples." Bird and Bird (1941) examined the same specimens as Witherby had and suggested that Portenko had merely renamed *barrovianus*; they also were unable to find characters to divide the species in any part of its range, and considered *hyperboreus* to be monotypic.

Rand (1942) supported the earlier views of Oberholser and Bishop that *barrovianus* was subspecifically distinct from *hyperboreus*, without mentioning *pallidissimus*. Two subspecies, *L. h. hyperboreus* and *L. h. barrovianus* were recognized by the A.O.U. (1945). However, Hellmayr and Conover (1948:261) continued to follow Dwight in denying recognition of *barrovianus*. They used only the binomial *Larus hyperboreus* for the birds in North America, but in a footnote commented that "this form is replaced by *L. h. pallidissimus*" on the arctic coast of Asia. They were equivocal on the validity of the latter, but stated that "birds from Greenland, Arctic America, and Alaska are not separable from those of northern Europe."

Dement'ev (in Dement'ev and Gladkov 1951) recognized two subspecies, *hyperboreus* from eastern Canada, Greenland, northern Europe, and extreme western Asia, and "*barrovianus*" from eastern Asia, Alaska, and Canada east to Ellesmere Island. In this, he essentially followed Portenko's division of the species but considered *pallidissimus* a synonym of *barrovianus*, rejecting Portenko's claim that the latter was based on a hybrid. He reinterpreted Friedmann's statement to Portenko (see above), as had Bird and Bird (1941), as indicating that the type of *barrovianus* was merely atypical and that the gulls from arctic America are "in fact extremely light." He also noted that the east Siberian birds are larger than Atlantic ones, and assumed that Alaskan ones agreed

with those in Siberia in this respect. Dement'ev stated, however, that (p. 562) "the boundary lines of the range in America remain completely obscure . . ." and further that the identity of American birds with those of Siberia "is still unproved, although quite likely."

The A.O.U. (1957) continued to recognize *barrovianus* as an Alaskan form and *hyperboreus* as the single other subspecies, extending from western Canada around the Holarctic to and including Siberia. Walrus Island, in the Pribilofs, was mentioned in the breeding range of both forms. Gabrielson and Lincoln (1959) followed the treatment by the A.O.U. but included Walrus Island and St. Matthew Island in the range only of *hyperboreus*. They indicated that the latter populations might belong to *pallidissimus*, which they had not fully evaluated.

Todd (1963:363) discussed the difference of opinion on the validity of *barrovianus* as distinct from *hyperboreus*. He noted an average color difference, but also that individual specimens from eastern and western Canada were "scarcely to be distinguished in general coloration." He further remarked that "the western birds of this species run smaller, sex for sex, than those from the East." However, he agreed with Dwight (1906, 1925) that the degree of size difference was insufficient for the recognition of subspecies. Ingolfsson (1970) similarly considered *L. hyperboreus* as monotypic.

Vaurie (1965:475) recognized three subspecies, with *barrovianus* restricted to "coasts and islands of Alaska . . . to about Franklin Bay in northwestern Mackenzie." He considered birds from central Mackenzie eastward through North America and Europe "to about the Taimyr Peninsula" in Siberia to be nominate *hyperboreus*. To *pallidissimus* he gave the range from the Taimyr Peninsula to the tip of the Chuckchi Peninsula, including Anadyrland, Wrangel Island, and the Pribilofs. He considered *barrovianus* to be small and dark, with a slender

bill, and *pallidissimus* to be paler in adult and immature plumages than *hyperboreus*. Portenko (1973) followed in recognizing these three subspecies, as did Glutz von Blotzheim and Bauer (1982) and Cramp (1983).

Several clues in this historical summary suggest that a pattern of variation in *L. hyperboreus* has been overlooked. Bishop (1927) noted that individuals of *hyperboreus* from Siberia (actually Portenko's later named *pallidissimus*) wander to Alaska, and suggested that such vagrants may have influenced Dwight's conclusions about the validity of a small, dark Alaskan subspecies. Portenko (1939) recognized, on the basis of one specimen from Ellesmere Island, that eastern Canadian birds are paler than European birds, as are Siberian birds. Both Portenko and Dement'ev (1951) were misled by Friedmann's letter to Portenko into thinking that Alaskan birds were also pale, despite Oberholser's (1918, 1919) statements to the contrary. Dement'ev (1951) noted that Siberian birds were larger than European ones, and Todd (1963) commented on increasing size to the east across Canada.

An additional clue to the reason for disagreement on the recognition of subspecies in North America is found in AMNH birds marked "Dwight ref. spec.," individuals that apparently formed the basis for Dwight's concept of various populations. A Greenland bird (AMNH 64142, unsexed, 2 Aug 1893, badly stained ventrally and soiled dorsally) and one from Sable Island, Nova Scotia (AMNH 358035, male, 22 Feb 1895) seem typical of their populations in size and color. However, the reference specimen from Pt. Barrow, Alaska (AMNH 358051, female, 5 Sep 1897) is not an adult bird; it has a black band on the bill and some brown mottling in the wing and tail feathers. Both age and date indicate that it is not a breeding bird. Although it is the size of other Alaska specimens, it is very pale on the mantle,



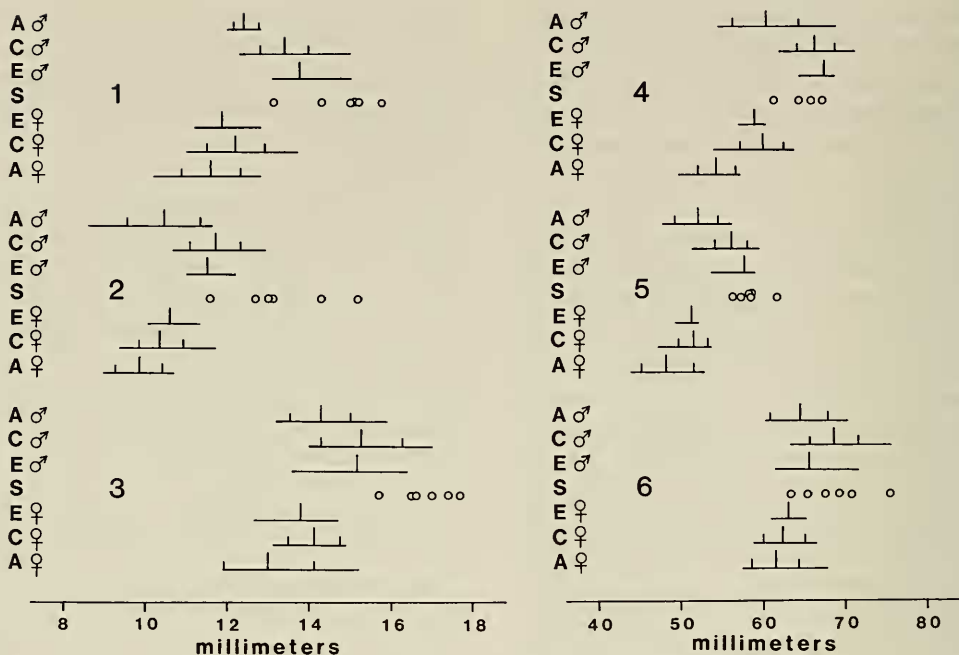


Fig. 1. Range of measurements in populations of the Glaucous Gull: 1, Depth of upper mandible; 2, Depth of lower mandible at gonys; 3, Width of upper mandible; 4, Length of culmen; 5, Length of lower mandible; 6, Length of tarsus. Horizontal line represents the range, the longer vertical line the mean, and the shorter vertical lines one standard deviation to either side of the mean. Individual measurements are plotted for the Siberian birds, which are not separated by sex, because of the small sample size.

even paler than the other two reference specimens. That reference specimen is probably why Dwight adamantly refused to recognize a dark-mantled Alaskan population.

### Methods of the Present Analysis

Sexed birds in the adult, gray-mantled plumage, taken mainly in the breeding season, were divided into subsets related to geographic origin—Alaska, eastern Canada and Greenland, Europe, and eastern Asia. The color of the mantle was judged in relative terms as pale or dark and was related to the Munsell (1929–1942) color system. Six measurements were made on each bird: 1) depth of the upper mandible at the anterior point of its lateral feathering; 2) depth of the lower mandible at the gonys; 3) length

of the unfeathered culmen; 4) length of the lower mandible from the point of its lateral feathering; 5) width of the bill at the point of lateral feathering on the upper mandible; and 6) length of the tarsus. Several of these measurements are not standard, but are self-explanatory. The culmen length measurement (3) approaches “length of total culmen” more nearly than “length of exposed culmen” of Baldwin et al. (1931). These measurements were designed to show the “massiveness” of the bill. Wing and tail length were not measured, because extensive wear on many specimens renders them unreliable.

Color comparisons were also made on the few downy young available, and on birds in the first-year brown streaked plumage. Color comparisons are not possible in the “second-year” fully white (“*hutchinsii*”) plum-

age. Measurements of birds in other than adult plumage were used for identification purposes after analysis had shown that the four samples represented separable populations.

### Results

Consideration of both color and size (Fig. 1) of birds from their breeding grounds indicates that four populations of *Larus hyperboreus* are distinguishable. Birds from the mainland of Alaska and nearby islands have relatively dark mantles and are small, the latter especially noticeable in the bill. Those of the eastern Canadian archipelago and Greenland have considerably larger bills and are paler on the mantle. European birds have similarly large bills but are darker on the mantle. Birds from Siberia and some islands in the Bering Sea are very large, with massive bills, and are very pale on the mantle. Thus, Siberian and eastern Canadian/Greenland birds are similar in their pale color (Munsell N 8.5–9/0), as noted by Portenko (1939), but differ in size of bill. Alaskan and European populations differ from the other two in being darker (Munsell N 7.5–8/0), and differ from one another in size of the bill. The relative color differences of the mantles of the adult birds are evident also in overall coloration of both downy young and first-year birds.

In general, there is a trend of increasing size in all bill measurements and in tarsal length (Fig. 1) eastward from Alaska around the Holarctic to Siberia, with the result that the largest and smallest populations are adjacent (but separated by the Bering and Chuckchi Seas and Bering Straits). There are reversals or interruptions in the trend in several instances; European birds are smaller than expected if the trend were a smooth cline. This may be an artifact of the small samples of European and Siberian birds or it may indicate that European birds are in fact only slightly different in size from those of Canada and Greenland. The trend

of increasing size around the Holarctic can only provisionally be considered a true cline because too few populations, each from a large area, are considered.

### Systematic Treatment

#### *Larus hyperboreus barrovianus* Ridgway, 1886

*Larus barrovianus* Ridgway, 1886:330.

*Holotype*.—USNM 88913, adult male, Point Barrow, Alaska, 4 Aug 1882. This specimen has some feathers of the neck, back and rump edged with brown; a few are edged with black that looks rather like oiling. The tail is also discolored at the tip. These markings may be what Friedmann was referring to in his letter to Portenko (see above). One other Point Barrow bird (USNM 93304) is similarly but less extensively marked.

*Breeding range*.—Coasts and islands of Alaska from Bristol Bay north to Kotzebue Sound and Point Barrow, and eastward on the Alaskan north coast. I have not examined specimens of *barrovianus* from east of Point Barrow.

*Discussion*.—If the species' range is continuous across the northern coast of Canada, as indicated by Godfrey (1966) but not by Snyder (1957), *barrovianus* probably intergrades with the next form between the Mackenzie River Delta and Franklin Bay. A worn, pale bird (AMNH 119090) from the Mackenzie River Delta is intermediate in three of the six measurements. Manning et al. (1956) commented that birds from western Canada are smaller than those in the east and in Greenland, although specimens from the Mackenzie Delta show less approach to *barrovianus* in color than in size. Henri Ouellet (pers. comm., 1985) noted that specimens in the National Museum of Canada from Mackenzie Delta, Anderson River, and Harrowhy Bay are closer to *barrovianus* in size and closer in average coloration of the mantle to *leucetetes*, and emphasized that Canadian birds are not

uniform in color; an occasional dark-mantled bird may occur anywhere from Banks Island east to Baffin Island.

A number of Alaskan specimens and non-breeding birds from the Pacific coast of North America are extensively dark on the primaries, perhaps a result of hybridization with the Glaucous-winged Gull, *Larus glaucescens*, or the Herring Gull, *L. argentatus* (Ingolfsson 1970:357–358; Strang 1977). Some very large birds from Alaska seem to be nonbreeding vagrant *pallidissimus* from Siberia, as suggested by Bishop (1927).

*Larus hyperboreus leuceteres* Schleep, 1819

*Larus leuceteres* Schleep, 1819:314.

*Holotype*. — Schleep (1819) mentioned three young birds from unspecified localities but based most of his description on an adult from Greenland in the collection of Herr Benicke of Schleswig. The range of the species was given as Greenland, Iceland, and Spitsbergen. Hellmayr and Conover (1948:260) accepted the Greenland adult as the type, noting, however, that it is probably lost.

*Breeding range*. — Northern Canada eastward from Franklin Bay, Mackenzie, the Canadian archipelago, south in Hudson Bay to the Belcher Islands and on the Atlantic coast to northern Labrador (Hopedale), Greenland, probably Iceland.

*Discussion*. — Ridgway (1919), Dwight (1925), and Hellmayr and Conover (1948) gave extensive synonymies for *L. hyperboreus*, from which a name applicable to the Canada-Greenland population, here recognized as an entity for the first time, must be chosen. The earliest available and appropriate name seems to be *Larus leuceteres* Schleep, 1819, based on specimens from Greenland, Iceland, and Spitzbergen, of which an adult bird from Greenland is considered to be the type (Hellmayr and Conover 1948:260). Meyer (footnote in Schleep 1819) indicated that *leuceteres* was a synonym of *Larus giganteus* Temm., but the latter name seems to be, at least in part, a

synonym of *L. marinus* Linnaeus (Saunders 1896; Ridgway 1919; Dwight 1925). Schleep (1819) contrasted *leuceteres* with *glaucus* by noting that the mantle of the former was “hellgraulichweiss” as opposed to “hellblaugrau” in *glaucus*. He also noted that the tarsus of *leuceteres* was slightly longer, and the bill was similar in form to that of *glaucus* but proportionately larger. In a table, Schleep further compared both *leuceteres* and *glaucus* to *L. marinus*. It is clear that he distinguished his Greenland bird from European specimens of *glaucus* (now *hyperboreus*).

My sample from the Canada-Greenland population included birds from Coronation Gulf, Baffin Island, and various islands in the northern Canadian archipelago, as well as from Greenland. Most are definitely breeding birds, but a few September specimens (Cornwallis Island) may have moved some distance from their nesting area.

Icelandic birds are provisionally placed with *leuceteres*, although the situation is far from clear. Ingolfsson (1970) has shown that Glaucous Gulls in Iceland now interbreed freely with Herring Gulls; recent specimens would be difficult to interpret on the subspecific level. I have examined only three older specimens from Iceland. A male (AMNH 745238, June, year not specified) is pale on the mantle like birds from eastern Canada and Greenland. In most measurements this bird falls into the range of the latter population, but it is in the zone of overlap with European birds in three measurements; in depth of the upper mandible it matches only the small Alaskan birds. A female (AMNH 745239, 9 Sep 1898) is not fully adult but matches European birds best in mantle color. Most of its measurements are in the overlap zone. The third specimen (AMNH 745241, female, 30 Nov 1823) is the type of *Larus minor* Brehm = *Larus medius* Brehm, names now carried in the synonymy of *L. hyperboreus*. It is less than fully adult, having a slight dark ring on the bill and some brown in the crown. There is too much dark color on the primaries to be typical of *hyperboreus*, and the bird appears



to be very small. In most measurements it fits with Canadian or Alaskan series, but the depth of the upper mandible is less than in any other specimen I measured. It is slightly paler on the mantle than European birds, but not quite as pale as Greenland specimens. I am not convinced that the bird is an example of *hyperboreus*, although it is too large to be an Iceland Gull, *L. glaucooides*. It may be a hybrid between these two species.

*Larus hyperboreus hyperboreus*  
Gunnerus, 1767

*Larus hyperboreus* Gunnerus, in Leems 1767:226.

*Holotype*.—Probably none extant, the name based on birds from northern Norway (Ridgway 1919; Hellmayr and Conover 1948; A.O.U. 1957).

*Breeding range*.—Northern Europe from Jan Mayen and Spitzbergen east along the coast and islands of the U.S.S.R. to the Taimyr Peninsula (Vaurie 1965).

*Discussion*.—My breeding sample of this population is small, only six birds, but wintering adults from Europe, presumed to represent this subspecies on geographic grounds, are similar in all characters. It is possible that some birds from Greenland stray to Europe in winter, and that the presence of paler Greenland birds with the darker European ones has given the impression of a wider range of variability in the European population than is evident from the examination of breeding birds alone.

*Larus hyperboreus pallidissimus*  
Portenko, 1939

*Larus hyperboreus pallidissimus* Portenko, 1939:226.

*Holotype*.—Male, settl. Naukan, Chukotski Peninsula (female paratype from settl. Uelen), in collection of L. Portenko, now presumably in the Leningrad Museum.

*Breeding range*.—Arctic Siberia from about the Taimyr Peninsula eastward to the

tip of the Chuckchi Peninsula, Wrangel Island, St. Matthew Island, and Walrus Island in the Pribilofs (Vaurie 1965; Portenko 1973).

*Discussion*.—An unsexed bird from Diomedede Island, Jul 1881 (USNM 97255) is pale on the back like *pallidissimus*, but is in the size range of *barrovianus*. The Diomedes would be a reasonable place for intergradation of the two subspecies, if they do intergrade. I also consider a male from Cape Lisburne, Alaska, 1 Aug 1897 (USNM 745279) to be intermediate; it is as large as typical *pallidissimus* but the mantle color is dark like that of *barrovianus*.

Nonbreeding Distribution in  
North America

Glaucous Gulls are inclined to wander extensively in the nonbreeding season, and movement to the east or west into the breeding range of another subspecies has been responsible, I believe, for some of the misunderstanding of geographic variation in the species. One bird from Point Barrow, Alaska, taken 5 Oct 1897 (AMNH 358049) is typical of the Siberian breeding population, *pallidissimus*, in both color and size. This bird was formerly in Dwight's collection and, if considered by him to be representative of the Barrow breeding population, may have been partly responsible for his (1906, 1919, 1925) rejection of Ridgway's name for the smaller, darker Alaskan form. Oberholser (1918) placed this bird with *barrovianus*, presumably on geographic grounds. A bird from Unalaska Island in the Aleutians (USNM 230781, 9 Jun 1911) is typical of *pallidissimus* in size but is in the all white plumage.

Several Alaska and Yukon birds appear to represent postbreeding or nonbreeding birds from the more eastern *leucetetes*. A bird from Tolugak Lake, Alaska (USNM 435222, 11 Jun 1949) in the all white plumage has measurements more similar to Canadian birds than to Alaskan ones. Juvenile birds from Bettles, Alaska (USNM 298495, 11 Oct 1924) and Old Crow, Yukon (USNM

469302, 28 Nov 1957) are both paler than typical juveniles from farther west in Alaska. As noted previously, Dwight's reference bird from Point Barrow (AMNH 358051, 5 Sep 1897) is pale dorsally, and another immature bird from there (USNM 93301, 15 Sep 1882) is also pale. These may all represent wanders from a more eastern, perhaps intermediate, population.

Most of the birds that move southward in the winter are young, in the all white plumage or some combination of that and a brown streaked plumage. For these birds color comparison is impossible and subspecific identification must be from measurements alone. No one measurement will suffice to separate the forms, although there is little or no overlap in most mensural characters of Siberian and Alaskan birds. A series or set of measurements, however, should indicate at least a strong probability of the breeding population from which a properly sexed specimen has been derived.

Glaucous Gulls appear somewhat infrequently in winter in Hawaii, more regularly along the Pacific coast of Canada and the United States to southern California and Baja California (Devillers et al. 1971), inland south to Texas and the Gulf coast, and on the Atlantic coast to Florida and, rarely, Bermuda. Pacific coastal birds have generally been referred to *barrovianus* when a subspecific determination has been made, and all west coast and Hawaiian birds that I have examined are indeed of that subspecies. A bird taken in Seattle, Washington (USNM 163899, 12 May 1896) was referred to *barrovianus* by Oberholser (1918) but to *hyperboreus* in distinction to *barrovianus* by Jewett et al. (1953). That identification to the larger form suggested that it might be a vagrant from the Siberian population, but measurements indicate that it is *barrovianus*. Devillers et al. (1971) mentioned an extremely large Glaucous Gull from the Salton Sea, California. I have examined that male bird (SBCM 33216), which is white with extensive brown mottling, and find that

it, too, is best considered *barrovianus* although its measurements overlap those of *leucereetes*.

When subspecific identification has been reported, Atlantic coast specimens have been called *hyperboreus*. Those that I have examined should be referred to *leucereetes*, here separated from the European *hyperboreus*. A Bermuda specimen (AMNH 783759, female, collected by D. Wingate, 18 Dec 1964) is a young bird, and its measurements are rather small, especially the depth of the lower mandible, but it best fits with *leucereetes*. Stevenson and Atherton (1984) have recently reviewed Florida records of *L. hyperboreus*, and noted that some specimens from that state are small.

Bailey and Niedrach (1965) reported two specimens of Glaucous Gull from Barr, Colorado, in the Denver Museum of Natural History, under the subspecific name *barrovianus*. Allan R. Phillips kindly provided measurements of these birds, taken to my specifications, and noted that both are in a brown mottled "first year" plumage. A male (DMNH 18800, 1 Apr 1938) is in the overlap zone of Alaskan and Canadian birds in three measurements but resembles Alaskan birds in culmen length and width and depth of the upper mandible. A female (DMNH 18799, 28 Mar 1938) equals or exceeds Canadian birds in all measurements except that of upper mandible width, leading one to wonder if it is missexed. If it were a male, two measurements would be those of Canadian birds, two of Alaskan, and two in the overlap zone. Asked for an impression of bill massiveness relative to Barrow, Alaska, birds in the DMNH collection, Phillips (in litt.) reported that the Colorado birds' bills were "heavier than most." With this information, and considering probably minor differences in measuring techniques, I suggest that both birds are from a population in western Canada that is in the intergrade zone.

One specimen of Glaucous Gull has been reported from Kansas (Rintoul 1984) and



two from Oklahoma (Anderson 1971; Ports 1976), all without subspecific identification. All three are in immature plumage with much brown mottling, and all are referred to *leucetetes* on the basis of measurements (KSTC B-1406, female, Cheyenne Bottoms, Barton Co., Kansas, 6 Mar 1967; UOMZ 7175, male, Salt Fork, Arkansas River, Alfalfa Co., Oklahoma, 5 Feb 1971; UOMZ 7913, male, Lake Hefner, Oklahoma Co., Oklahoma, 27 Dec 1974).

Another bird (MCZ 33036, 17 Dec 1880) is claimed as a specimen record for both Oklahoma (Sutton 1967) and Texas (Oberholser 1974); it was taken on the Red River, which separates the states. Oberholser (1918, 1974) considered this bird to be *barrovianus*. The bird is labelled as a male, and if this sex determination is correct I agree with Oberholser's identification. However, the depth of the upper mandible is less than in any male *barrovianus* that I measured and I suspect that the specimen is actually a female, in which case the measurements place in the low range of *leucetetes*. It may represent the population where the two subspecies intergrade. Ragsdale (1881) commented that the bird had been dead for six weeks before he obtained it; when and by whom the sex was determined is not indicated.

A specimen from Gainesville, Cook Co., Texas (MCZ 32371; date unknown) was allotted to *L. h. hyperboreus* by Oberholser (1918, 1974). I refer this unsexed bird to *leucetetes*. A bird found dead at the Hagerman National Wildlife Refuge, Grayson Co., Texas, by Karl Haller is also *leucetetes*.

One other Texas specimen (WWF 1357, Mustang Island, Neuces Co., 10 Apr 1967) has also been listed as an example of *L. h. barrovianus* (Oberholser 1974). This bird was reexamined by R. G. McCaskie, who believed it to be an albinistic Herring Gull, *L. argentatus*. I have also studied this specimen and agree that it is a Herring Gull. Although its culmen length is within the range of *L. h. barrovianus*, all other mea-

surements are too small for any subspecies of *hyperboreus*. A similar all-white-plumaged specimen from Louisiana (LSU 130496, female, 2 mi NNE Chalmette, St. Barnard Par., 28 Feb 1982) is also probably an albino, most likely of *argentatus*, rather than any form of *hyperboreus*. However, a partly gray-backed, nearly adult plumaged bird (LSU 103495, female) taken at the same time and place as the last is an example of *L. h. leucetetes*.

It thus appears from the specimen record now available that Alaskan Glaucous Gulls (*barrovianus*) move to the south only along the Pacific coast, and not into the inland states. All specimens from east of the Rocky Mountains represent the Canadian population, *leucetetes*, although some seem to be from the western portion of the breeding range of that subspecies where intergradation with *barrovianus* presumably occurs.

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